REMARKS

Status of the Claims

Claims 1-16 are pending. Claims 1-16 are rejected. Claims 1-11 and 15 are amended. Claims 12-14 and 16 are canceled. No new matter has been added. Reconsideration of the pending claims is respectfully requested.

Claim amendments

Claims 1 and 7 are amended to overcome rejections under 35 U.S.C. 112, second paragraph and claim 8 is amended to overcome rejections under 35 U.S.C. 112, first paragraph, 35 U.S.C. 102(b) and 35 U.S.C. 103(a), as discussed *infra*. Claims 2, 6 and 9 are amended to correct grammar. Claims 3-5 are amended to overcome objections to the claims and to clarify claim language. Claims 7 and 15 are amended to remove Markush language. Claims 10-14 and 16 are canceled. No new matter is added in any claim amendment.

Objection to the specification

The specification is objected to as not containing reference to priority applications. As suggested, the specification is amended to cross-reference the earlier filed applications to which priority is claimed.

Claim Objections

Claims 3-4 are objected to as not further limiting the subject matter of a previous claim. The Examiner states these claims recite an additional function for 2-bromopalmitate rather than further limit the functions for 2-bromopalmitate as set forth in claim. With regard to claim 3, Applicants respectfully disagree.

Claim 3 is amended to clarify that 2-bromopalmitate inhibits protein palmitoylation within the N-terminus of the proteins. Protein palmitoylation can occur in different proteins at different sites within the protein. As amended, claim 3 limits the site of palmitoylation to the N-terminal region (pg. 37, ll. 11 to pg. 39, ll. 8). As suggested, claim 4 is amended to include the qualifier "further".

The 35 U.S.C. §112, First Paragraph, Rejection

Claims 8-15 are rejected under 35 U.S.C. §112, first paragraph, for lack of enablement. Applicants respectfully traverse this rejection.

The Examiner states that the specification, while being enabling for a method of treating an autoimmune disease in a patient suffering therefrom, the specification does not reasonably provide enablement for broadly treating, for any purpose, an individual having a non-specified pathophysiological state.

Claim 8 is amended to recite a method of inhibiting T-cell receptor mediated signaling events in an individual having an autoimmune disease. The method, as amended, comprises administering 2-bromopalmitate to the individual to inhibit Fyn/Lck fatty acylation in the T-cells thereby inhibiting T-cell receptor mediated signaling events (pg. 39, ll. 13 to pg. 41, ll. 14). This method is fully described and enabled by the specification.

The specification also discloses that 2-bromopalmitate, in inhibiting Fyn/Lck fatty acylation, inhibits localization of palmitoylated proteins to detergent resistant microdomains (pg. 39, ll. 13 to pg. 41, ll. 14) thereby inhibiting subsequent T-cell receptor mediated signaling events such as tyrosine phosphorylation (pg. 41, ll. 19 to pg. 43, ll. 14), calcium mobilization (pg. 43, ll. 19 to pg. 45, ll. 3) and MAP kinase activation (pg. 45, ll. 8-17).

Claims 9-15 depend from amended independent claim 8. Claims 10-11 are canceled as redundant. Fatty acylation of Fyn/Lck is palmitoylation and myristoylation, both occurring in the N-terminal region of the Fyn/Lck proteins. The limitation of dependent claims 12 and 14 are incorporated into the preamble of amended claim 8 and thus are enabled, as discussed *supra*. Claims 9 and 15 further limit the dose and autoimmune disease recited in amended claim 8 and, therefore, are enabled. Claims 12-14 are canceled. Accordingly, in view of the claim amendments and arguments presented herein, Applicant respectfully requests that the rejection of claim 8-15 under 35 U.S.C. §112, first paragraph be withdrawn.

The 35 U.S.C. §112, Second Paragraph, Rejection

Claims 1-7 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is respectfully traversed.

The Examiner states that in claim 1, line 3, the term "treatment" does not have antecedent basis. Applicants have deleted the phrase "in need of such treatment" from the preamble. The Examiner also states that the requirements of claim 7 fail to have

antecedent basis in claim 1. Claim 7 has been amended to correctly depend on claim 6. Accordingly, in view of the claim amendments presented herein, Applicants request that the rejections of claims 1-7 under 35 U.S.C. §112, second paragraph, be withdrawn.

The 35 U.S.C. §102 Rejection

Claims 8, 10-12 and 16 are rejected under 35 U.S.C. §102(b) as being anticipated by **Harper** *et al.* (U.S. Patent No. 5,714,516). Applicants respectfully traverse this rejection.

The Examiner states that **Harper** *et al.* teach a method of treating a virus infection in an individual comprising administering to such an individual an effective amount of 2-bromopalmitic acid or salts thereof as well as compositions which comprise 2-bromopalmitic acid or salts thereof and a pharmaceutically acceptable carrier (Abstract; col. 2, ll. 26; col. 2, ll. 63 to col. 3, ll. 10). The Examiner states that the biochemical functions as recited in claims 10-12 are deemed inherent in the prior art method because the same host is administered the same active agent. Applicant respectfully disagrees.

Harper *et al.* teach methods of treating herpes virus infections by administering hydroxy or bromine derivatives of myristic acid, including 2-bromopalmitate (Abstract; col. 1, ll. 47 to col. 2, ll. 37). **Harper** *et al.* demonstrated that 2-hydroxymyristic acid and 2-bromopalmitic acid could inhibit plaque formation by Varicella zoster virus (VZV) in Mewo monolayers *in vitro* (col 4, ll. 27 to col. 5, ll. 29).

Applicants have canceled claims 10-11 and 16. Applicants' invention in claim 8, as amended, incorporates the limitations of claims 12 and 14 and is drawn to a

method of inhibiting T-cell receptor mediated signaling events in an individual having an autoimmune disease. Administration of 2-bromopalmitate inhibits Fyn/Lck fatty acylation thereby inhibiting subsequent T-cell receptor mediated signaling events. At a minimum, **Harper** *et al.* cannot anticipate Applicants' invention because the reference does not teach that the individual has an autoimmune disease. **Harper** *et al.* specifically teach the effect of the myristic acid analogs, including 2-bromopalmitate, against non-retroviral infections, such as herpes virus infections.

Furthermore, **Harper** *et al.* do not teach, either expressly or inherently, inhibiting T-cell receptor mediated signaling events by inhibiting Fyn/Lck fatty acylation. Applicants strongly disagree with the Examiner's statement that inhibiting T-cell signaling events is inherent in the prior art method because the same host is administered the same active agent. One of ordinary skill in the art could not recognize that the prior art inherently produced Applicants' invention. Fyn/Lck proteins are expressed on host T-cells and not on viruses. Thus, a skilled artisan would not find it inherent that an agent taught as specifically effective against herpes virus, but with minimum cytotoxic effect on the infected host cells, would demonstrate an inhibitory effect on host T-cell function, particularly in that the proteins affected by the agent are not found on viruses.

Additionally, inherency requires that the result must be a necessary consequence of what is intended. Inhibition of T-cell receptor mediated signaling events is not a necessary consequence of treating a herpes virus infection. Furthermore, the MPEP, in citing *In re Robertson*, 169 F.3d 743, 745,49 USPQ2d 1949, 195-51 (Fed. Cir. 1999), states that inherency may not be established by probabilities or possibilities. The mere

fact that a certain thing may result from a given set of circumstances is not sufficient. Thus, the fact that 2-bromopalmitate is administered to the same host, as required by the instant claims, as in **Harper** *et al.* is not sufficient to establish the functional inherency of 2-bromopalmitate as an inhibitor of T-cell receptor mediated signaling because it treats viral infections.

Absent express or inherent teachings of inhibiting T-cell receptor mediated signaling events in an individual having an autoimmune disease by inhibiting Fyn/Lck fatty acylation, **Harper** *et al.* do not anticipate claims 8, 10-12 and 16, as amended or canceled. Thus, **Harper** *et al.* is not an effective prior art reference under 35 U.S.C. 102(b). Accordingly, in view of the amendments and arguments presented herein, Applicants request that the rejection of claims 8, 10-12 and 16 under 35 U.S.C. §102(b) be withdrawn.

The 35 U.S.C. §103(a) Rejection

Claims 8-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Harper** *et al* (U.S. Patent No. 5,714,516). Applicants respectfully traverse this rejection.

The Examiner states that **Harper** *et al* fails to highlight the dosages, as in Applicants' claim 9, and the conditions the host suffer, as in Applicants' claims 13-15. The Examiner states that it would be obvious for the skilled artisan to determine the optimum dosage to provide the most effective therapy possible. Also, the Examiner states **Harper** *et al.* do not exclude the fact that the host may also suffer from other diseases/disorders as recited in Applicants' claims 13-15.

Harper *et al.* is discussed *supra*. Applicants have canceled claims 10-11, 13 and 16 and have incorporated the limitations of canceled claims 12 and 14 into amended claim 8. Although **Harper** *et al.* do not exclude the host from having an autoimmune disease, no suggestion is present that 2-bromopalmitate would have any effect on an autoimmune disease, particularly in inhibiting T-cell receptor mediated signaling events in an individual with an autoimmune disease. One of ordinary skill in the art could not translate the effect of myristic acid analogs in reducing *in vitro* plaque formation by herpes viruses demonstrated in **Harper** *et al.* to a motivation to administer 2-bromopalmitate to an individual having an autoimmune disease to inhibit Fyn/Lck fatty acylation. A herpes viral infection is significantly different from an autoimmune disease with different etiologies, symptoms and progressive states.

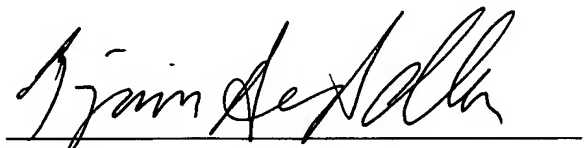
Furthermore, a person having ordinary skill in this art would not find a reasonable expectation of success from the disclosure in **Harper** *et al.* that one could inhibit T-cell receptor mediated signaling events in an autoimmune disease or any disease with a T-cell mediated component. As stated *supra*, Fyn/Lck proteins are T-cell proteins, viruses do not have Fyn/Lck proteins and no T-cell component is present in the *in vitro* plaque assays presented in **Harper** *et al.* Any reasonable expectation of success is found in Applicants' specification, as discussed *supra*. At best, one of ordinary skill in the art merely would be trying and it is well known that "obvious to try" is not the standard under 35 U.S.C. 103(a). Thus, amended claim 8 is both novel and non-obvious over **Harper** *et al.*

Claims 9 and 15 depend from amended independent claim 8 and further limit the dose of 2-bromopalmitate and the types of autoimmune diseases, respectively. If amended independent claim 8 is not obvious over **Harper** *et al.*, then the inclusion of one or both of these dependent claims cannot render Applicants' invention obvious over **Harper** *et al.* Thus, Applicants submit that, lacking a teaching or suggestion of all the elements of the claimed invention and a reasonable expectation of success not found in Applicants' disclosure, obviousness has not been established. Therefore, the invention was not obvious to one of ordinary skill in the art at the time the invention was made. Accordingly, in view of the amendments and arguments presented herein, Applicants request that the rejection of claims 8-16 under 35 U.S.C. §103(a) be withdrawn.

This is intended to be a complete response to the Office Action mailed June 22, 2004. Applicant submits that pending claims 1-9 and 15 are in condition for allowance. If any issues remain, the Examiner is respectfully requested to telephone the undersigned attorney of record for immediate resolution.

Respectfully submitted,

Date: Sept 20, 2004



Benjamin Aaron Adler, Ph.D.,J.D.
Registration No. 35,423
Counsel for Applicant

ADLER & ASSOCIATES
8011 Candle Lane
Houston, Texas 77071
(713) 270-5391 (tel.)
(713) 270-5361 (fax)
badler1@houston.rr.com